(August 1, 2005)

Verification tests shall be performed to verify the design of the anchor system. These ground anchor test results shall verify the Contractor's design and be approved by the Engineer prior to ordering anchor material for the tieback retaining walls. The tests shall be performed on sacrificial test anchors. A minimum of two successful verification tests shall be conducted. The locations shall be close to the anchor location of the production anchors. The test locations shall be selected by the Contractor and approved by the Engineer, except where specific permanent ground anchor rows between specific station limits are shown in the Plans.

The drilling method, anchor diameter, and depth of anchorage for the test anchor shall be identical as for the production anchors. The no-load zone shall be backfilled prior to withdrawing the casing.

For permanent ground anchor systems specified in the general notes in the Plans as designed under Load Resistance Factor Design (LRFD), the anchor tested shall be loaded to 150 percent of the factored design load (FDL). For permanent ground anchor systems specified in the general notes in the Plans as designed under Load Factor Design (LFD), the anchor tested shall be loaded to 200 percent of the design load (DL). The prestressing tendon shall be proportioned such that the maximum stress does not exceed 80 percent of the ultimate strength of the steel. The jack shall be positioned at the beginning of the test such that unloading and repositioning of the jack during the test will not be required.

The verification tests shall be made by incrementally loading the anchors in accordance with the following schedule.

AL - Anchor Alignment Load
DL – Design Load
FDL - Factored Design Load

Load Resistance Factor Design Method (LRFD)		Load Factor Design Method (LFD)	
Load	Hold Time	Load	Hold Time
AL	1 Min.	AL	1 Min.
0.25FDL	10 Min.	0.25DL	10 Min.
0.50FDL	10 Min.	0.50DL	10 Min.
0.75FDL	10 Min.	0.75DL	10 Min.
1.00FDL	10 Min.	1.00DL	10 Min.
1.15FDL	60 Min.	1.25DL	10 Min.
1.25FDL	10 Min.	1.50DL	60 Min.
1.50FDL	10 Min.	1.75DL	10 Min.
AL	1 Min.	2.00DL	10 Min.
		AL	1 Min.

The test load shall be applied in increments of 25 percent of the factored design load. Each load increment shall be held for at least 10 minutes.

Measurement of anchor movement shall be obtained at each load increment. The load-hold period shall start as soon as the test load is applied and the anchor movement, with respect to a fixed reference, shall be measured and recorded at 1 minute, 2, 3, 4, 5, 6, 10, 15, 20, 25, 30, 45, and 60 minutes.

The verification test will be considered successful if the anchor meets the criteria for a performance tested ground anchor in Section 6-17.3(9), and in addition, a pull-out failure does not occur at the 1.50FDL maximum load (for LRFD design anchors) and 2.00DL maximum load (for LFD design anchors).

The Engineer will give the Contractor a written order concerning ground anchor construction within seven working days after completion of the verification tests. This written order will either confirm the bond lengths as shown in the Contractor's plans for ground anchors or reject the anchors based upon the result of the verification tests.